UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,923	01/20/2004	Mehran Mokhtari	020703	2158

65050 7590 03/01/2010

HRL LABORATORIES, LLC
3011 MALIBU CANYON RD.
MALIBU, CA 90265

EXAMINER	
NGUYEN, LEON VIET Q	
ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
03/01/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

legal@hrl.com
grrapacki@hrl.com

Office Action Summary	Application No.	Applicant(s)	
	10/761,923	MOKHTARI ET AL.	
	Examiner	Art Unit	
	LEON-VIET Q. NGUYEN	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,5,13,18,23,24,26,27,35,40,45,46,48,49,57,62,64-67,70-72,78,80 and 81* is/are rejected.

7)☒ Claim(s) *6,28,50,68,69 and 79* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1,2,4-6,13,18,23,24,26-28,35,40,45,46,48-50,57,62,64-72 and 78-81.

DETAILED ACTION

1. This office action is in response to communication filed on 6/16/09. Claims 1, 2, 4-6, 13, 18, 23, 24, 26-28, 35, 40, 45, 46, 48-50, 57, 62, 64-72 and 78-81 are pending on this application.

Response to Arguments

1. Applicant's arguments with respect to claims 1, 2, 4-6, 13, 18, 23, 24, 26-28, 35, 40, 45, 46, 48-50, 57, 62, 64-72 and 78-81 have been considered but are moot in view of the new ground(s) of rejection.

Response to Remarks

Regarding claims 1, 23, 45, 67, and 78 applicant asserts that Vercellotti does not teach the added limitation "the absence of all cycles in at least one digital gated carrier wave indicates a second state of said digital data" (Remarks page 19 fourth paragraph).

Examiner respectfully disagrees.

It is noted that applicant contends that the newly added limitation is described on page 11 lines 1-14 of the specification and fig. 5. In fig. 5, the gated wave is interpreted to be feature 264. However there does not appear to be an absence of all cycles, which are denoted by a zero. There are several ones in the gated wave 264. Therefore it is unclear where there is an absence of all cycles in the gated carrier wave.

Regarding claim 4, applicant asserts that Walker does not teach gating a carrier wave (Remarks page 20 seventh paragraph).

Examiner respectfully disagrees.

Walker teaches digital data in the form of ones and zeroes is applied to two AND gates (¶0054). It is well known in the art that AND gates will either output a 0 or 1 depending on the input. Therefore, the AND gate is capable of performing a gating function. Furthermore, the digital data comprising ones and zeroes received by Walker is analogous to the digital data 262 in fig. 5 of applicant's specification.

Although Walker does not explicitly teach that the digital data is a carrier wave, examiner asserts that it would be necessary for the digital data to be modulated on a carrier wave in PSK modulation (¶0021) prior to being transmitted. It would be obvious to gate the digital date after it has been modulated onto a carrier.

Regarding claim 13, applicant asserts that Mohindra does not suggest a digital signal processor (Remarks page 22 fourth paragraph).

Examiner respectfully disagrees.

Mohindra teaches that modulation may be performed digitally (col. 1 lines 59-62) including digital interpolation filters (fig. 1, col. 3 lines 36-40). The device also processes signal in the digital domain (col. 3 lines 28-31).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 23, 45, 67, and 78 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Re claims 1, 23, 45, 67, and 78 applicant has amended the claims to recite "the absence of all cycles in at least one digital gated carrier wave indicates a second state of said digital data". However the examiner has failed to find support for the added limitation in the specification, as noted in the response to remarks above. For the purposes of this examination, the examiner will interpret all cycles to be an arbitrary number of cycles.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 4, 18, 23, 24, 26, 40, 45, 46, 48, 62, 64 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker (US20020110190) in view of Vercellotti (US4653073).

Re claim 1, Walker teaches a communication system for transmitting and receiving digital data comprising:

a transmitter (¶0021, it would be necessary to have a transmitter to transmit digital data) transmitting one or more gated carrier waves gated by said digital data (¶0017, ¶0054) and

a receiver (¶0021, it would be necessary to have a receiver to receive digital data) detecting at least one gated carrier wave of the one or more gated carrier waves (¶0019),

wherein the presence of a specified number of cycles in said at least one digitally gated carrier wave indicates a first state of said digital data (¶0013-¶0014, the pulses are interpreted to represent ones which are interpreted to be a first state) and the absence of a specified number of cycles in said at least one digitally gated carrier wave indicates a second state of said digital data (¶0014, ¶0054, the gate causes a missing cycle and is activated when a digital zero is present. The zero is interpreted to be a second state).

Walker fails to teach counting cycles of the at least one gated carrier wave of the one or more gated carrier waves wherein said receiver comprises digital counting circuitry counting the number of cycles present in and counting the number of cycles absent from said at least one digitally gated carrier wave.

However Vercellotti teaches counting cycles of the at least one carrier wave (counters 406-412 and 422 in fig. 35) wherein said receiver comprises digital counting

circuitry counting the number of cycles present in and counting the number of cycles absent from said at least one digitally gated carrier wave (col. 43 lines 58-64).

Therefore taking the combined teachings of Walker and Vercellotti as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the feature of Vercellotti into the system of Walker. The motivation to combine Vercellotti and Walker would be to provide substantially better performance (col. 44 lines 27-30 of Vercellotti).

Re claim 2, the modified invention of Walker fails to explicitly teach a communication system wherein at least one digitally gated carrier has a frequency in the less than microwave, microwave or millimeter wave spectrum and is radiated in free space from said transmitter to said receiver. However the use of microwaves is well known in broadcasting and telecommunication transmissions and is transmitted through the air in free space by a transmitter.

Re claim 4, the modified invention of Walker a communication system where said transmitter comprises:

a carrier wave generator (¶0021, it is well known in the art that transmitters have carrier wave generators such as an oscillator to generate carrier waves to be modulated with data); and

a digital gating device (¶0054, AND gates 21 and 24) coupled to said carrier wave generator (it would be obvious that the wave generator and gating device would be coupled together since the carrier signal is gated) and controlled by said digital data (¶0054),

said digital gating device gating a carrier wave from said carrier wave generator on and off according to a state of the digital data (¶0054).

Re claim 18, the modified invention of Walker teaches a communication system wherein said transmitter selectably generates said at least one digitally gated carrier wave at selectable radio frequencies (abstract of Walker, varying frequencies).

Re claim 23, the claimed limitations recited have been analyzed and rejected with respect to claim 1. It would be obvious and necessary to have a method of using the apparatus as claimed in claim 1.

Re claim 24, the claimed limitations recited have been analyzed and rejected with respect to claim 2.

Re claim 26, the claimed limitations recited have been analyzed and rejected with respect to claim 4.

Re claim 40, the claimed limitations recited have been analyzed and rejected with respect to claim 18.

Re claim 45, the claimed limitations recited have been analyzed and rejected with respect to claim 1.

Re claim 46, the claimed limitations recited have been analyzed and rejected with respect to claim 2.

Re claim 48, the claimed limitations recited have been analyzed and rejected with respect to claim 4.

Re claim 62, the claimed limitations recited have been analyzed and rejected with respect to claim 18.

Re claim 64, the claimed limitations recited have been analyzed and rejected with respect to claim 18. Furthermore, the radiated electrical signal as claimed is interpreted to be a transmitted radio signal. Walker teaches a method of receiving a transmitted digital data signal (¶0021 of Walker).

Re claim 66, the modified invention of Walker teaches an apparatus wherein means for transmitting comprises means for selecting one or more selectable radio frequencies for said at least one gated carrier wave based on a desired coding (¶0031-¶0034 of Walker).

3. Claims 5, 27, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker (US20020110190) and Vercellotti (US4653073) in view of Yousefi et al (US6957078).

Re claim 5, the modified invention of Walker fails to teach a communication system wherein said transmitter further comprises a power amplifier disposed at said output of said digital gating device and coupled to at least one transmit antenna.

However Yousefi teaches a communication system wherein said transmitter further comprises a power amplifier (abstract, TWTA 210 in fig. 2) disposed at said output of said digital gating device (modulator 206 in fig. 2 which is further described in

fig. 3, col. 4 lines 1-2) and coupled to at least one transmit antenna (antennas 112 and 114 in fig. 2).

Therefore taking the modified teachings of Walker and Vercellotti with Yousefi as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the power amplifier of Yousefi into the system of Walker and Vercellotti. The motivation to combine Yousefi, Walker and Vercellotti would be to provide more efficient use of downlink, satellite power, and satellite processing (col. 6 lines 8-15 of Yousefi). Furthermore, it is well known in the art that amplifiers are used to increase the signal strength.

Re claim 27, the claimed limitations recited have been analyzed and rejected with respect to claim 5.

Re claim 49, the claimed limitations recited have been analyzed and rejected with respect to claim 5.

4. Claims 13, 35, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker (US20020110190) and Vercellotti (US4653073) in view of Mohindra (US6922555).

Re claim 13, the modified invention of Walker teaches a digital signal processor receiving an output from said digital counting circuitry (block 414 in fig. 35 of Vercellotti) but fails to teach wherein said receiver additionally comprises:

a receive antenna;

a low noise amplifier coupled to said receive antenna; and

a limiter circuit coupled to an output of said low noise amplifier and providing an output to said digital counting circuitry; and

However Mohindra teaches a receive antenna (antenna 3 in fig. 1);

a low noise amplifier coupled to said receive antenna (LNA 4 in fig. 1); and

a limiter circuit coupled to an output of said low noise amplifier (limiter 8 in fig. 1) and providing an output to said digital counting circuitry (interpolation filters in fig. 1, which include an accumulator that is actually a counter that gives a digital output, col. 7 lines 17-26).

Therefore taking the modified teachings of Walker and Vercellotti with Mohindra as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the feature of Mohindra into the system of Walker and Vercellotti. The motivation to combine Mohindra, Walker and Vercellotti would be to give accurate and continuous modulation phase at zero IF (col. 3 lines 12-15 of Mohindra).

Re claim 35, the claimed limitations recited have been analyzed and rejected with respect to claim 13.

Re claim 57, the claimed limitations recited have been analyzed and rejected with respect to claim 13.

5. Claim 65 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walker (US20020110190) and Vercellotti (US4653073) in view of MacLellan et al (US6456668).

Re claim 65, the modified invention of Walker fails to teach an apparatus wherein said means for receiving additional comprises a diode detector coupled to said means for receiving a radiated electrical signal, wherein said diode detector produces a baseband digital on/off bit format signal.

However MacLellan teaches a diode detector coupled to said means for receiving a radiated electrical signal (modulator 302 in fig. 3, col. 3 lines 10-18), wherein said diode detector produces a baseband digital on/off bit format signal (col. 3 lines 46-52).

Therefore taking the modified teachings of Walker and Vercellotti with MacLellan as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the features of MacLellan into the system of Walker and Vercellotti. The motivation to combine MacLellan, Walker and Vercellotti would be to minimize losses of the radio signal (col. 3 lines 10-16 of MacLellan).

6. Claims 67, 70-72, 78, 80, and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luhman et al (US20040223557) in view of Ainsworth (US5245630) and Walker (US20020110190).

Re claim 67, Luhman teaches a digital transmitter for transmitting digital data comprising:

a carrier generator providing one or more carrier signals at selected frequencies (¶0031, although not explicitly taught it would be necessary to have a generator to generate a carrier wave); and

a data edge synchronizer coupled to said serial stream of digital bits and receiving at least one carrier signal of said one or more carrier signals (¶0031-¶0032, the clock signal is interpreted to represent the cycles of the carrier wave. It would be obvious to have a synchronizer to perform the synchronization), said data edge synchronizer producing a synchronized stream of digital bits (¶0031, the data bit stream is synchronized to the clock signal), wherein at least one edge of each digital bit in said synchronized stream of digital bits is synchronized to a specified part of each cycle within said at least one carrier signal (¶0031-¶0032, the data and clock signals are synchronized to each other); and

Luhman fails to teach a serializer coupled to said digital data and producing a serial stream of digital bits. However Ainsworth teaches a serializer coupled to said digital data and producing a serial stream of digital bits (col. 2 lines 19-27).

Therefore taking the combined teachings of Luhman and Ainsworth as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the serializer of Ainsworth into the transmitter of Luhman. The motivation to combine Ainsworth and Luhman would be to provide serial data which is well known to travel over further distances than parallel data.

Luhman also fails to teach a gating circuit gating at least one carrier signal of said one or more carrier signals according to each digital bit in said synchronized stream of digital bits. However Walker teaches a gating circuit (AND gates 21 and 24 in fig. 2) gating at least one carrier signal of said one or more carrier signals according to each digital bit in said stream of digital bits (¶0054).

Therefore taking the combined teachings of Luhman and Walker as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the gating circuit of Walker into the transmitter of Luhman. The motivation to combine Walker and Luhman would be to reduce or eliminate undesirable radiation (¶0052 of Walker).

Re claim 70, the modified invention of Luhman teaches a digital transmitter wherein said gating circuit gates said at least one carrier signal on and off (¶0054 of Walker).

Re claim 71, it would be obvious and necessary to have the gating circuit (AND gates 21 and 24 of Walker) select one carrier signal of said one or more carrier signals and gates the selected carrier signal.

Re claim 72, the modified invention of Luhman teaches a digital transmitter wherein said gating circuit (AND gates 21 and 24 of Walker) gates said at least one carrier signal according to each digital bit in said synchronized stream of digital bits (¶0054 of Walker) and according to a specified code sequence (¶0033 of Walker).

Re claim 78, the claimed limitations recited have been analyzed and rejected with respect to claim 67.

Re claim 80, the claimed limitations recited have been analyzed and rejected with respect to claim 71.

Re claim 81, the claimed limitations recited have been analyzed and rejected with respect to claim 72.

Allowable Subject Matter

7. Claims 6, 28, 50, 68, 69 and 79 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEON-VIET Q. NGUYEN whose telephone number is (571)270-1185. The examiner can normally be reached on Monday-Friday, alternate Friday off, 7:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Leon-Viet Q Nguyen/
Examiner, Art Unit 2611

/David C. Payne/
Supervisory Patent Examiner, Art Unit 2611